

What is claimed is:

1. A method for detecting a failure at a first host having a first socket and a second socket, wherein the first host's first socket is used for sending requests to a second host's first socket, and receiving responses from the second host's first socket, and the first host's second socket is used for receiving requests from the second host's second socket, and sending responses to the second host's second socket, comprising:

detecting when a failure condition occurs at the first host's second socket, and, when the failure condition is detected:

attempting to send a communication from the first host's first socket to the second host's first socket;

if the attempt to send succeeds, closing the first host's second socket, then attempting to reconnect the first host's second socket; and

if the attempt to reconnect succeeds, setting an internal state to indicate that normal operation is resumed.

2. The method of claim 1, further comprising:

when the failure condition is detected, setting an internal state to indicate the first host is attempting to recover from the failure condition.

3. The method of claim 1, wherein:

the first host's first socket and the first host's second socket are independent of one another.

4. The method of claim 1, further comprising:

if the attempt to send fails, closing the first host's first socket; and

if the attempt to reconnect fails, closing the first host's first socket.

5. The method of claim 1, wherein:

detecting when a failure condition occurs comprises detecting when no communication has been received from the second host's second socket at the first host's second socket in reply to a communication sent to the second host's second socket by the first host's second socket.

6. The method of claim 1, wherein:

detecting when a failure condition occurs comprises detecting at least one of: (a) when a communication medium used by the first host's second socket has been disconnected from the first host, and (b) when an operating system of the first host reports an error.

7. A first host, comprising:

a first socket and a second socket;

wherein the first host's first socket is used for sending requests to a second host's first socket, and receiving responses from the second host's first socket, and the first host's second socket is used for receiving requests from the second host's second socket, and sending responses to the second host's second socket;

a memory for storing software instructions; and

a control associated with the memory for executing the software instructions for:

detecting when a failure condition occurs at the first host's second socket, and,

when the failure condition is detected:

attempting to send a communication from the first host's first socket to the second host's first socket;

if the attempt to send succeeds, closing the first host's second socket, then attempting to reconnect the first host's second socket; and

if the attempt to reconnect succeeds, setting an internal state to indicate that normal operation is resumed.

8. A program storage device, tangibly embodying a program of instructions executable by a first host to perform a method for detecting a failure, the first host having a first socket and a second socket, wherein the first host's first socket is used for sending requests to a second host's first socket, and receiving responses from the second host's first socket, and the first host's second socket is used for receiving requests from the second host's second socket, and sending responses to the second host's second socket, the method comprising:

detecting when a failure condition occurs at the first host's second socket, and, when the failure condition is detected:

attempting to send a communication from the first host's first socket to the second host's first socket;

if the attempt to send succeeds, closing the first host's second socket, then attempting to reconnect the first host's second socket; and

if the attempt to reconnect succeeds, setting an internal state to indicate that normal operation is resumed.

9. A method for detecting a failure at a first host having a first socket and a second socket, wherein the first host's first socket is used for sending requests to a second host's first socket, and receiving responses from the second host's first socket, and the first host's second socket is used for receiving requests from the second host's second socket, and sending responses to the second host's second socket, the method comprising:

detecting when a failure condition occurs at the first host's first socket, and, when the failure condition is detected:

checking an internal state to determine whether the first host is attempting to recover from a failure condition detected at the first host's second socket;

if the internal state indicates the first host is attempting to recover, allowing the first host to attempt to recover;

if the internal state indicates the first host is not attempting to recover, attempting to reconnect the first host's first socket; and

if the attempt to reconnect succeeds, setting an internal state to indicate that normal operation is resumed.

10. The method of claim 9, wherein:

the first host's first socket and the first host's second socket are independent of one another.

11. The method of claim 9, wherein:

detecting when a failure condition occurs comprises detecting when a problem occurs in at least one of sending a communication from the first host's first socket to the second host's first socket, and receiving a communication from the second host's first socket at the first host's first socket.

12. The method of claim 9, wherein:

detecting when a failure condition occurs comprises detecting when no communication has been received from the second host's first socket at the first host's first socket in reply to a communication sent to the second host's first socket by the first host's first socket.

13. The method of claim 9, further comprising:

if the attempt to reconnect fails, closing the first host's second socket.

14. A first host, comprising:  
a first socket and a second socket;  
wherein the first host's first socket is used for sending requests to a second host's first socket, and receiving responses from the second host's first socket, and the first host's second socket is used for receiving requests from the second host's second socket, and sending responses to the second host's second socket;  
a memory for storing software instructions; and  
a control associated with the memory for executing the software instructions for:  
detecting when a failure condition occurs at the first host's first socket, and, when the failure condition is detected:  
checking an internal state to determine whether the first host is attempting to recover from a failure condition detected at the first host's second socket;  
if the internal state indicates the first host is attempting to recover, allowing the first host to attempt to recover;  
if the internal state indicates the first host is not attempting to recover, attempting to reconnect the first host's first socket; and  
if the attempt to reconnect succeeds, setting an internal state to indicate that normal operation is resumed.

15. A program storage device, tangibly embodying a program of instructions executable by a first host to perform a method for detecting a failure, the first host having a first socket and a second socket, wherein the first host's first socket is used for sending requests to a second host's first socket, and receiving responses from the second host's first socket, and the first host's second socket is used for receiving requests from the second host's second socket, and sending responses to the second host's second socket, the method comprising:

detecting when a failure condition occurs at the first host's first socket, and, when the failure condition is detected:

checking an internal state to determine whether the first host is attempting to recover from a failure condition detected at the first host's second socket;

if the internal state indicates the first host is attempting to recover, allowing the first host to attempt to recover;

if the internal state indicates the first host is not attempting to recover, attempting to reconnect the first host's first socket; and

if the attempt to reconnect succeeds, setting an internal state to indicate that normal operation is resumed.

16. A method for detecting a failure at a first host, the first host having a first socket and a second socket, wherein the first host's first socket is used for receiving requests from a second host's first socket, and sending responses to the second host's first socket, and the first host's second socket is used for sending requests to the second host's second socket, and receiving responses from the second host's second socket, the method comprising:

detecting when a failure condition occurs at the first host's first socket, and, when the failure condition is detected:

checking an internal state to determine whether the first host is attempting to recover from a failure condition detected at the first host's second socket;

if the internal state indicates the first host is attempting to recover, allowing the first host to attempt to recover;

if the internal state indicates the first host is not attempting to recover, closing the first host's first socket and waiting for the second host to reconnect the first host's first socket; and

if the attempt to reconnect succeeds, setting an internal state to indicate that normal operation is resumed.

17. The method of claim 16, wherein:  
the first host's first socket and the first host's second socket are independent of one another.

18. The method of claim 16, wherein:  
detecting when a failure condition occurs comprises detecting when a problem occurs in at least one of sending a communication from the first host's first socket to the second host's first socket, and receiving a communication from the second host's first socket at the first host's first socket.

19. The method of claim 16, wherein:  
detecting when a failure condition occurs comprises detecting when no communication has been received from the second host's first socket at the first host's first socket in reply to a communication sent to the second host's first socket by the first host's first socket.

20. The method of claim 16, further comprising:  
if the attempt to reconnect fails, closing the first host's second socket.

21. A first host, comprising:  
a first socket and a second socket;  
wherein the first host's first socket is used for receiving requests from a second host's first socket, and sending responses to the second host's first socket, and the first

host's second socket is used for sending requests to the second host's second socket, and receiving responses from the second host's second socket;

- a memory for storing software instructions; and

- a control associated with the memory for executing the software instructions for:

- detecting when a failure condition occurs at the first host's first socket, and, when the failure condition is detected:

- checking an internal state to determine whether the first host is attempting to recover from a failure condition detected at the first host's second socket;

- if the internal state indicates the first host is attempting to recover, allowing the first host to attempt to recover;

- if the internal state indicates the first host is not attempting to recover, closing the first host's first socket and waiting for the second host to reconnect the first host's first socket; and

- if the attempt to reconnect succeeds, setting an internal state to indicate that normal operation is resumed.

22. A program storage device, tangibly embodying a program of instructions executable by a first host to perform a method for detecting a failure, the first host having a first socket and a second socket, wherein the first host's first socket is used for receiving requests from a second host's first socket, and sending responses to the second host's first socket, and the first host's second socket is used for sending requests to the second host's second socket, and receiving responses from the second host's second socket, the method comprising:

- detecting when a failure condition occurs at the first host's first socket, and, when the failure condition is detected:

- checking an internal state to determine whether the first host is attempting to recover from a failure condition detected at the first host's second socket;



if the internal state indicates the first host is attempting to recover, allowing the first host to attempt to recover;

if the internal state indicates the first host is not attempting to recover, closing the first host's first socket and waiting for the second host to reconnect the first host's first socket; and

if the attempt to reconnect succeeds, setting an internal state to indicate that normal operation is resumed.

23. A method for detecting a failure at a first host, the first host having a first socket and a second socket, wherein the first host's first socket is used for receiving requests from a second host's first socket, and sending responses to the second host's first socket, and the first host's second socket is used for sending requests to the second host's second socket, and receiving responses from the second host's second socket, the method comprising:

detecting when a failure condition occurs at the first host's second socket, and, when the failure condition is detected:

attempting to send a communication from the first host's first socket to the second host's first socket;

if the attempt to send succeeds, closing the first host's second socket and waiting for the second host to reconnect the first host's second socket; and

if the attempt to reconnect succeeds, setting an internal state to indicate that normal operation is resumed.

24. The method of claim 23, further comprising:

when the failure condition is detected, setting an internal state to indicate the first host is attempting to recover from the failure condition.

25. The method of claim 23, wherein:  
the first host's first socket and the first host's second socket are independent of one another.

26. The method of claim 23, further comprising:  
if the attempt to send fails, closing the first host's first socket; and  
if the attempt to reconnect fails within a specified waiting period, closing the first host's first socket.

27. The method of claim 23, wherein:  
detecting when a failure condition occurs comprises detecting when no communication has been received from the second host's second socket at the first host's second socket in reply to a communication sent to the second host's second socket by the first host's second socket.

28. The method of claim 23, wherein:  
detecting when a failure condition occurs comprises detecting at least one of: (a) when a communication medium used by the first host's second socket has been disconnected from the first host, and (b) when an operating system of the first host reports an error.

29. A first host, comprising:  
a first socket and a second socket;  
wherein the first host's first socket is used for receiving requests from a second host's first socket, and sending responses to the second host's first socket, and the first host's second socket is used for sending requests to the second host's second socket, and receiving responses from the second host's second socket;

a memory for storing software instructions; and  
a control associated with the memory for executing the software instructions for:  
detecting when a failure condition occurs at the first host's second socket, and,  
when the failure condition is detected:  
attempting to send a communication from the first host's first socket to the second  
host's first socket;  
if the attempt to send succeeds, closing the first host's second socket and waiting  
for the second host to reconnect the first host's second socket; and  
if the attempt to reconnect succeeds, setting an internal state to indicate that  
normal operation is resumed.

30. A program storage device, tangibly embodying a program of instructions executable by a first host to perform a method for detecting a failure, the first host having a first socket and a second socket, wherein the first host's first socket is used for receiving requests from a second host's first socket, and sending responses to the second host's first socket; and the first host's second socket is used for sending requests to the second host's second socket, and receiving responses from the second host's second socket, the method comprising:

detecting when a failure condition occurs at the first host's second socket, and,  
when the failure condition is detected:  
attempting to send a communication from the first host's first socket to the second  
host's first socket;  
if the attempt to send succeeds, closing the first host's second socket and waiting  
for the second host to reconnect the first host's second socket; and  
if the attempt to reconnect succeeds, setting an internal state to indicate that  
normal operation is resumed.